STANDARD OPERATING PROCEDURE		NO. MGMT #1
DIVISION: Management		**EFFECTIVE DATE**: April 22, 2008
MANAGEMENT CATEGORY: Title 36, CFR, Chapter 1	**SUPPLEMENTS:** Superintendent's Compendium (Orders), September 18, 2007	**INDEX:**
TITLE SUBJECT: Compendium for Isle Royale National Park	**RESCINDS:** None	**REFERENCE:** A5639 xW42/W6
SUB-ACTIVITY: None	**ATTACHMENTS:** Compendium Emergency Restriction for Isle Royale National Park	**DISTRIBUTION:** All Employees SOP Books
APPROVED:		
/S/ Phyllis A. Green **SUPERINTENDENT**		April 22, 2008 **DATE**

COMPENDIUM

Amendment Emergency Restriction to the May 19, 1994, Compendium and May 15, 2000 Additions and Amendments to the Park Compendium

FOR

ISLE ROYALE NATIONAL PARK

April 2008

Pursuant to Title 16, United States Code (U.S.C.), Section 3, and Title 36, Code of Federal Regulations (CFR), Chapter 1, Parts 1-7, the following additions and amendments to the Compendium (Superintendent's Orders) are established for the management, protection, and public use of Isle Royale National Park. The specific delegated authority for the promulgation of Superintendent's Orders is found in Sections 1.5, 1.6, and 1.7 of Title 36 CFR.

Superintendent's Orders complement or clarify general park regulations found in Title 36 of the CFR. These Orders are established in addition to the regulations contained in Parts 1-7 of Title 36 CFR. Provisions of the revised Compendium become effective on Oct. 1, 2007. Until that date, the Compendium dated May 23, 1994, and additions and amendments dated May 15, 2000 remain in effect.

/S/Jean Battle
Recommended by: 04/22/08

Chief Division of Natural Resources Management

/S/Larry A. Kangas
Reviewed by: 04/22/08

Chief Ranger, Division of Law Enforcement and Emergency Services

/S/ Phyllis A. Green
Approved by: 04/22/08

Superintendent

This amendment is specifically pursuant to **36 CFR 1.5(a) – Closures and Public Use Limits**

(a) Consistent with applicable legislation and Federal administrative policies, and based upon a determination that such action is necessary for the maintenance of public health and safety, protection of environmental or scenic values, protection of natural or cultural resources, aid to scientific research, implementation of management responsibilities, equitable allocation and use of facilities, or the avoidance of conflict among visitor use activities, the Superintendent may:

(1) Establish, for all or a portion of a park area, a reasonable schedule of visiting hours, impose public use limits, or close all or a portion of a park area to all public use or to a specific use or activity.

(2) Designate areas for a specific use or activity, or impose conditions or restrictions on a use or activity.

The following **Emergency Restriction and conditions** are added to the Superintendent's Compendium:

1. The possession or use as bait for fishing within the Lake Superior waters of the park is limited to:

a. Only those fish and or the fish parts taken from fish that are caught within Isle Royale National Park waters, where the fish or fish parts used for bait are taken by lawful fishing methods, OR
b. Fish or fish parts obtained by the park and distributed to anglers as bait that is clear of viruses or diseases.

c. Transporting fish or fish parts for use as bait to the park is prohibited. Any fish or their fish parts used for bait within the Lake Superior waters of the park is valid only for the duration of each trip.

2. *All boats transported to the park via the Ranger III must be decontaminated prior to being loaded at the Houghton dock. "Decontamination" can be accomplished by either:*
    a. *cleaning and drying the watercraft and/or all associated gear and equipment so that they are dry and free of any vegetation, animals and mud and that the bilges, live wells and other compartments are also clean, dry and free of all organic material. A minimum of 5 days of drying before loading is required.*
    b. *Wash your boat, including bilge and equipment with hot (>104º F) and/or high pressure water, or,*

c. **Disinfecting** with either 200 ppm (0.5 oz per gallon or 1 Tablespoon liquid chlorine bleach per gallon water) for 10-minute contact time, or disinfectant compounds registered with the EPA that target viral pathogens, that are approved for public use, and are used as directed, such as Virkon Aquatic. 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Disinfection should occur 100 feet away from any waterbody; disinfectant should not be allowed to drain directly to waterbody or storm sewer. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfectant should be used in conjunction with a hot water (>104º F) application.

Effective Date of the 2008 Compendium Emergency Closure

The 2008 Superintendent's Compendium Emergency Restriction for Isle Royale National Park will become effective on April 22, 2008, and remain in effect until superseded.

Availability of the Compendium

Copies of the Compendium are available at park Headquarters, Isle Royale National Park, 800 East Lakeshore Drive, Houghton, MI 49931. Copies may also be obtained from the Rock Harbor or Windigo Visitor Centers on the main island of Isle Royale during the operating season.

Reason for the Emergency Restriction

The purpose of this emergency restriction is to avoid severe damage to park resources and catastrophic loss of recreational opportunities that would occur from the introduction and spread of Viral Hemorrhagic Septicemia (VHS) into Isle Royale National Park via the use of infected bait fish or parts of infected fish by recreational anglers, either directly via bait fishing, or through transport via water, mud, etc on recreational boats transported to the park via the Ranger III.

Background

The VHS virus, an exotic fish pathogen, was diagnosed for the first time ever in the Great Lakes in 2005 though it is now known to have been present since 2003 through diagnosis of archived fish samples. It has been responsible for causing extensive fish kills in Lake Huron, Lake St. Clair, Lake Erie, Lake Ontario, the St. Lawrence and Detroit Rivers, and inland lakes in Wisconsin, lower Michigan, New York, and Ontario, in 2005 and 2006. The virus is classified as Type I – IV with unique strains or isolates occurring within each type. The virus found in the Great Lakes is classified as Type IV-b and appears to have mutated from the marine isolate known previously from the Atlantic coast of North America. In addition to the North American Atlantic Coast and Great Lakes isolate, other isolates occur on the North American Pacific Coast and in

Europe and Asia. European isolates have caused massive mortalities in rainbow trout production facilities and in wild populations of brown trout. Several other species have also been affected in Europe. VHS is not known to have been transported into the Lake Superior Basin yet.

VHS has the potential to be more devastating environmentally and ecologically than the sea lamprey, which caused the extirpation of lake trout in all Great Lakes except Lake Superior and a few locations in Lake Huron. The damage from sea lamprey has cost hundreds of millions of dollars in losses to fisheries throughout the Great Lakes. The Great Lakes Fishery Commission and sea lamprey control offices invest approximately $18 million annually to control populations of this species. Other invasive species such as zebra and quagga mussels have been responsible for massive ecological change in the basin and damage to community infrastructure such as clogging water intake pipes, water filtration and electric plants. The associated control costs from this damage have been estimated at $100 million per year by New York Sea Grant (Pimentel et al 2000). Estimated costs to control all aquatic non-indigenous species in the United States are approximately $2.5 billion per year (Pimentel et al 2000).

Most significant about this virus's invasion of the Great Lakes is that it has impacted species of fish across several taxonomic families, including some that were not known to be affected by other variants of the virus. Because newly impacted species continue to be found, it is still not known how many families of fish could ultimately be affected. However, the VHS virus is known to affect nearly fifty species of fish including trout and other salmonids and it has been suspected of causing outbreaks in lake trout. The Great Lakes variant has caused die offs in at least 12 species of fish in the Great Lakes including commercially and recreationally important species such as northern pike, walleye, smallmouth bass, and yellow perch. Other species that have been affected by the virus include freshwater drum, white bass, black crappie, muskellunge and bluegill (USDA 2006). Species that are known to be carriers of the virus in the Great Lakes include Chinook salmon, rock bass, silver and shorthead redhorse, northern pike, burbot, spottail shiners and emerald shiners (Wisconsin Sea Grant fact sheet). Species such as lake trout and brook trout have been shown to be experimentally susceptible to VHS, (Skall et al 2005) and whitefish (Coregonus sp.) in Europe have been infected and show signs of infection such as septicemia hemorrhages (Meier et al 1986). Preliminary investigations of the Great Lakes variety of VHS show that it does cause moderate mortality in salmonids, including lake trout, Chinook salmon and steelhead (rainbow trout) (USDA 2006).

This is the first time that a virus has affected so many different fish species from so many fish families in the Great Lakes, and because European variants impact many species of salmonids (the family which includes trout, salmon, whitefish and char), the potential for the Great Lakes strain to have impacts on lake trout and several other species is very high.

The VHS virus is readily transmissible to fish of all ages, and survivors of infection can become lifelong carriers that shed virus with urine and sex products. Fish of any age are

susceptible to infection, and epizootic losses occur at temperatures of 3° to 12°C (37-54 °F) (mortality is greatest at 3° to 5°C (37-41°F). The optimum temperature for virus replication is 14-15°C; virus yield is reduced at 6°C, and little replication occurs above 20°C. (Fish Disease Leaflet 83, USGS Leetown Science Center) Because the virus replicates and is particularly virulent at cooler temperatures, Lake Superior could provide an ideal environment for large scale replication and many species found in the lake could be susceptible.

Because of the susceptibility of lake trout, the documented infections of whitefish and the cooler water temperatures of Lake Superior, potential impacts to Lake Superior species, and in particular Isle Royale populations, could be catastrophic.

Isle Royale is a unique refuge for Lake Trout with approximately 12 morphological variants across 3 genetically distinct phenotypes found around the island. Lake trout is the most common sport fish sought at Isle Royale, and a limited assessment fishery using commercial fishing techniques is still supported by populations at and around the island. Nearly 10,000 lake trout were harvested by sport anglers at Isle Royale during a survey conducted in 1998. Lake Superior is the only Great Lake where lake trout populations are considered to be rehabilitated following population crashes in the mid 20th century due to sea lamprey invasions. Isle Royale is considered as one of only a few locations where lake trout stocks still maintain a high level of their original genetic composition. Any loss of stocks from the island would be a loss of genetic material and valuable information that would compromise ongoing efforts to restore lake trout populations in the other Great Lakes.

The potential impact to lake trout and the need for additional protection from potential disease transmission via the use of fish and fish parts for recreational bait fishing could be catastrophic for Isle Royale populations. Isle Royale has an extensive network of reefs across its waters, and lake trout utilize these to congregate for spawning and feeding. Lake trout begin spawning in late August, and spawning continues into October and November. Congregating for feeding or because of other stimuli has also been observed in other seasons, but it is not as well understood at the island. When lake trout spawn at Isle Royale, fish move from a more dispersed state into dense congregations at spawning reefs around the island. Infection of one or a few fish that move into spawning congregations could potentially spread the virus to an entire stock of fish in a short amount of time. After spawning, fish tend to re-disperse around the island and will often mix with fish of other stocks. This re-dispersal could quickly spread the virus to all stocks around the island.

Introduction and spread of VHS also would cause catastrophic loss of recreational fishing opportunities at Isle Royale National Park by decimating other important recreation and commercial fish stocks. In addition to lake trout, species such as coaster brook trout, lake whitefish, round whitefish (menominee), cisco (lake herring) including the rare shortjaw cisco and other coregonids could be impacted. These are all either commercially or recreationally important species throughout Lake Superior. In addition to their commercial importance, the coregonids are a primary and important food base

for lake trout, brook trout and other predator species and loss of these species would affect not only Isle Royale but the entire Lake Superior food web.

The coaster brook trout populations from Isle Royale are two of only a few populations in the Great Lakes that are considered to be self-sustaining. Fish from these populations have been used to create brood stocks to aid in restoration efforts in other parts of the lake. Additionally, coaster brook trout were recently petitioned for listing under the Federal Endangered Species Act. Because it provides a federally-owned haven for the survival of the species, Isle Royale would likely be designated as Critical Habitat for species protection and recovery by the U.S. Fish and Wildlife Service should coaster brook trout be federally-listed as threatened or endangered. Catch and release only restrictions have already been enacted at all of Isle Royale to protect this species. Any impact to the Isle Royale populations could severely compromise the long term sustainability of these populations and lakewide restoration efforts.

Current Protective Measures

The use of fish, fish parts, or roe (fish eggs) for recreational bait fishing is a means by which the disease can be transmitted to new populations of fish. Michigan, Wisconsin, and Ontario have all established regulations to reduce the risk of VHS transmission via bait (New York has voluntary rules.) The USDA Animal and Plant Health Inspection Service has placed restrictions on movement of fish (including bait species) throughout the Great Lakes States.

The State of Michigan has enacted new regulations for sale, collection, and use of bait fish in its waters due to the presence of VHS in some waters and the threat of its occurrence in currently uncontaminated waters. The State of Michigan's Department of Natural Resources (MDNR) regulates sport and commercial fishing within Isle Royale's Lake Superior waters. The MDNR has divided its waters into 3 Management Areas: VHS-Positive; VHS Surveillance; or VHS-Free. It uses these zones, plus the Prohibited Species list (a list of species which have been shown to be susceptible to VHS) as the foundation for its new regulations. For prohibited species, the new regulations require that bait dealers either certify that their bait is virus-free, or provide a receipt to buyers indicating in which Management Area(s) the bait can be used. Receipts must be kept by anglers and presented upon request during the fishing trip and are valid for 7 days. Uncertified bait cannot be used in a Management Area that is less contaminated than that in which it was collected or reared. The same restrictions apply for personal collection of wild bait which is on the Prohibited Species List. For those species not on the list, there are no VHS restrictions.

"Clean boat" initiatives have been established by state resource agencies in Michigan, Wisconsin, and Minnesota, in an effort to reduce the spread of aquatic invasive species (AIS), including VHS. Inadvertent transport via mud, weeds, and water on recreational boats moving among waterbodies has been suspected in several instances of new outbreaks of exotic species. Boats transported on the Ranger III also have the potential to carry AIS to the park.

The park has already enacted emergency regulations to protect its waters from the potential release of VHS via commercial vessel ballast water. Ballast water, the use of bait fish, and recreational boats containing water or sediments from contaminated waters are all considered potentially high risk vectors in the NPS and Grand Portage Band of Lake Superior Chippewa's 2008 Viral Hemorrhagic Septicemia Prevention and Response Plan (Plan).

Why Current Restrictive Measures Will Not Suffice

1. The MDNR's 2008 bait fish regulations will not provide adequate protection from the potential spread of VHS for the following reasons:

- The regulations rely on accurate species identification of fish parts and roe.
- There is no effective way to prevent anglers from combining bait from different sources after purchase or detect when it has occurred.
- Management Area boundaries include natural barriers to fish passage on specific tributaries that may not be readily known by anglers or bait dealers trying to define which areas they collected bait fish and which management area(s) those fish can be used.
- There is no effective way to enforce wild bait collection restriction except in those cases where a given bait species is known not to occur within a specific Management Area (minority of cases.)
- The State of Michigan's Management Areas do not extend to other Great Lake states or Canada, and bait use is being regulated differently in different jurisdictions.
- In addition to the above, an Isle Royale limitation is that many anglers come directly to Isle Royale from MN, WI, and Canada. Purchase of certified bait or bait from a Michigan-licensed dealer is not possible/feasible. Also, some angler trips are longer than 7 days, making their bait supply unusable and no ready source for buying new bait.
- The potential VHS-positive water sources for bait fish and fish parts increase because Isle Royale's visitor base is from several states and Canada.

2. Staff knowledge indicates that a minimum of 20% of Lake Superior anglers at Isle Royale may use real fish bait. In addition, preliminary results of an informal poll in 2008 by the Isle Royale Boaters Association of its members show that as many as 43% of its members may use real bait for a portion of their Isle Royale fishing trips. A 1998 survey of Lake Superior boat anglers at Isle Royale determined that 19,340 hours (+/- 5,356) of fishing effort by non-charter boat anglers occurred from June through August (Lockwood et al, 2001.) Fishing at Isle Royale is a primary attraction for visitors; many come to Isle Royale primarily to fish for lake trout.

3. The potential impacts of a VHS outbreak could be catastrophic for Isle Royale's genetically distinct nearshore populations of coaster brook trout and its populations of genetically diverse lake trout. The park's vulnerability may be increased because lake

trout congregate to spawn at reefs within park waters, thereby creating an atmosphere where the disease could be rapidly transmitted to many fish that will then disperse (as well as to eggs during fertilization.) See Background section above for details.

4. The State of Michigan's current VHS regulations require that boaters drain all water from live wells and bilges upon leaving any body of water. While this addresses standing water in boats, it does not address the potential for sediments, fish remains, etc that may still be in a boat between fishing trips. VHS transported via sediments on recreational boats (anchors, etc) is identified as a moderate vector risk in the Plan. Therefore, the park is requiring that recreational boats are decontaminated prior to loading onto the Ranger III. Decontamination options are hot water wash, extended drying on land, or the use of disinfectant. Disinfectants that are effective against VHS currently include a chlorine solution, 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time; or Virkon Aquatic, 1:100 solution (38 grams per gallon) for 20- to 30-minute contact time. Any compound that has been registered with EPA, is approved for use by the public to kill VHS on boats, and is used according to Material Safety Data Sheet requirements will be acceptable. All disinfection activities using chemicals or hot-water washes should be conducted where the runoff cannot enter surface water. No washing, rinsing or disinfection will be allowed at the park headquarters.

5. Restrictive, park-specific measures to prevent the introduction of VHS by human-associated vectors may prove effective because the park is isolated from non-park user groups that do not fall under NPS jurisdiction. The park shares no adjacent shorelines and is not located near heavily-used state or provincial sites. Therefore, the most likely transmission sources to the park are those that specifically travel to or through the park, and therefore can be effectively regulated to reduce risk of VHS contamination.

6. The park is considering the option to provide a frozen bait supply for anglers. If feasible, the park could obtain Lake Superior basin-caught bait from species not on the Prohibited List and would complete the certification process for it (as an extra measure of protection; this is not required for non-Prohibited List species), and would give limited amounts to anglers to use as starter bait as a way to reduce the need to bring in bait from outside the park. This provides an extra measure of protection while providing for the additional inconvenience due to the new regulations.